

ABSTRACT OF THE DISCLOSURE

A high throughput, on-line, pulsed ultrafiltration-mass spectrometric method has been developed to determine whether a compound has predetermined characteristics that would make it suitable for a specific purpose, *e.g.* drug development. The method is useful to generate, identify, and quantify metabolites of compounds formed by drug metabolizing enzymes such as cytochrome P450, UDP-glucuronyltransferases, and glutathione transferases. The method is useful for rapid screening of drugs or other compounds to determine the extent of their metabolism and to characterize their primary metabolites. If reactive and potentially toxic metabolites are formed during, *e.g.* cytochrome P450 oxidation, the metabolites can be reacted with glutathione and then detected on-line using mass spectrometry in a rapid assay to assess the potential for toxicity. In addition, the method is useful for the determination of bioavailability, absorption and cell permeability of compounds.